



# Seismology: Endless Frontier

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...this is not the end. This is not even the beginning of the end. But, perhaps, the end of the beginning.  
Winston Churchill

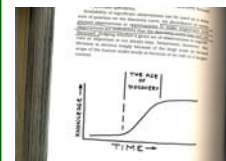
<http://www.iaspei.org>

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<http://www.ctbto.org>

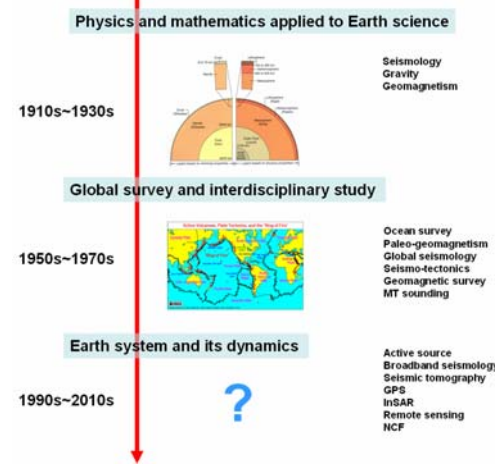
IMS is an international facility for large-scale scientific projects originally aiming at the monitoring of a Comprehensive Nuclear Test Ban Treaty. Whether IMS would like to be concerned also with the fundamental scientific problems of seismology and physics of the Earth's interior depends to much extent on its interest in the state-of-the-art and future progress of this scientific branch. Such a concern is quite reasonable, since generally it is not possible for a scientific branch to be always in a fast-growing period.

If one plots cumulative knowledge as a function of time using almost any measure of knowledge, the curve will rise slowly at early times, then rise rapidly during a relatively short interval, then flatten out to become asymptotic to the total quantity of knowledge available in that subject.

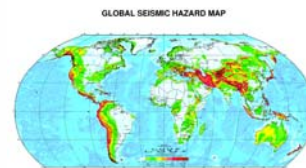
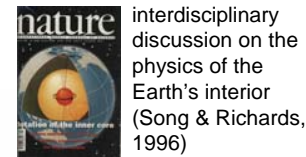


**The curve of discovery**  
(Jack E. Oliver, 1991. *The Incomplete Guide to the Art of Discovery*, NY: Columbia Univ. Pr.)

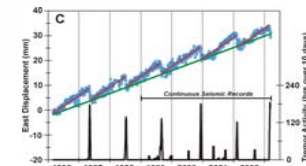
At present seismology is in a period of fast development. A new series of discoveries is underway, following the first series in the 1910s to 1930s which led to a clear picture of the Earth's interior, and the second one in the 1950s to 1970s which led to the establishment of global plate tectonics.



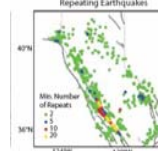
Driving engines of the new progresses in seismology: a few examples



interdisciplinary discussion on the physics of the Earth's interior (Song & Richards, 1996)  
increasing needs of society for the reduction of earthquake disasters (GSHAP, 1999, [www.seismo.ethz.ch/GSHAP](http://www.seismo.ethz.ch/GSHAP))

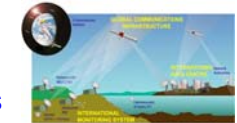


application of new technologies (Rogers & Dragert, 2003)



accumulation of high-quality observational data (Waldhauser & Schaff, 2008)

Big Science Devices in the development of basic science



IMS  
In the perspective of seismology, IMS is by no means merely a machine simply applying well-established technologies. Similar to the role of the Hubble Space Telescope in astronomy, IMS provides a well-functioning global observation facility and has the potential to contribute to the new development of seismology and physics of the Earth's interior.

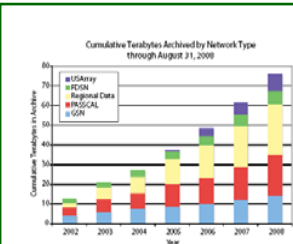
Hubble Space Telescope



European Organization for Nuclear Research



CERN

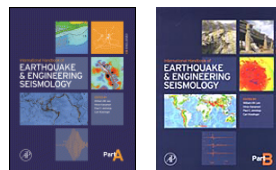


**Accumulation of seismic data**  
Figure from:



Among the driving engines of the new progresses in seismology and physics of the Earth's interior we can certainly list: meeting the increasing needs of society for the reduction of earthquake disasters and the exploration of resources; the interdisciplinary discussion on the physics of the Earth's interior and the physics of earthquakes; the continuous accumulation of high-quality observational data; application of new technologies in seismological observation and data analysis; debates on several unsolved fundamental problems related to earthquakes and the Earth's interior, and most importantly, the study of important earthquakes that provide opportunities for new discoveries in seismology.

For development of seismology, see:



For seismology-related meetings, see: <http://www.iaspei.org/meetings/forthcoming.html>

**Beyond ISS09** Long-term perspective of the collaboration between seismological community and CTBT monitoring community

—Cape Town 2009: the first time for PTS group to attend IASPEI Assembly, having exhibition desks and technique presentations

—Possible follow-up of the ISS09 and possible starting of the long-term cooperation were envisaged by the meeting of ISS and IUGG/IASPEI leaders – in Cape Town in January, and in Vienna in April

—IASPEI proposed a union/inter-association session on CTBT monitoring for the IUGG 2011 General Assembly

—The mechanism of the IMS open data access is getting more clear: project-based open data access within the framework of ISS